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ABSTRACT

This paper focuses on the challenges of using photographic evidence while conducting evaluation and research. The viability of photo-interviewing is discussed as part of a perception-based model of evaluation to describe and judge a technology infusion program in higher education. The program involved the use of a software tool, HyperCard, as a means of integrating many of the short- and long-term technology goals of the College of Education at the University of South Alabama (Mobile). Major evaluation questions, developed through negotiations among program participants, addressed the nature of participants and participation; the nature and effectiveness of training; the use of microcomputers in classrooms of participating faculty; other training taken by faculty participants; the impact of computer use on students; and outcomes, follow-ups, and replication strategies. Subjects participated in an "Introduction to HyperCard" workshop, during which they were photographed at selected times. One month after subjects participated in the workshop, photo-interviews were conducted with four groups of workshop participants (N=19 out of 27 students). Evaluators used a five-phase process to select photographs and clarify data derived from the oral interviews. Offering promise in bridging physical and psychological realities, this study applied a photoanalysis model to extend oral interview data gathered from a hypermedia training program. Four polemics concerning photo-interviewing as a tool of inquiry are presented. Four sample photographs are included. (TJH)

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Photo-Interviewing as a Tool of Inquiry

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Presented at the 1990 Meeting of the National Consortium for Instruction and Cognition, Boston, MA.

Abstract: This session focuses on the challenges of using photographic evidence while conducting evaluation and research. The viability of photo-interviewing is discussed in terms of evaluating a technology infusion program in higher education. Offering promise in bridging physical and psychological realities, this study applied a photoanalysis model to clarify and extend oral interview data gathered from a hypermedia training program. Photo-interviews were conducted with a sample of 19 program participants. Four polemics concerning photo-interviewing as an inquiry tool are presented.

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INTRODUCTION

There is a duality to subjectivity in the social sciences that is often overlooked. In education and training, for example, researchers try to keep the data clean and avoid projecting subjective feelings into the objective record. On the other hand, those engaged in needs assessments and process evaluations (especially those that are internally generated) must dance around a double edged sword particularly when objectives are not clearly defined. Even those programs that have clearly defined objectives in the original proposal often suffer from the consequences of predetermination. Particularly true when a program is in its first year of operation, reductionistic and objectives-based data collection strategies are prone to generate insufficient data for ongoing program improvement.

Photography as a method of inquiry has rarely been applied systematically in educational program evaluation or research (Wachtman, 1978; Brown, et.al., 1982; Fang, 1985; English, 1988). The viability of this method has been well documented in anthropology and sociology (e.g., Becker, 1978; Byers, 1964; Collier & Collier, 1986; and Garfinkel, 1967) and has been further illuminated by Susan Sontag's (1977) cautions. To unlock the meaning of this information, one must examine more than empirical facts. It is necessary also to grapple with the problem of gathering subjective and intersubjective perceptions.

This session will focus on some of the challenges of using photographic evidence and photo-interviewing in evaluation or research. Specifically, the authors will discuss the viability of photo-interviewing as part of a perception-based model of evaluation to describe and judge a technology infusion program in higher education. Central to our investigation is the study of what Erickson and Mohatt (1982) call "immediate environments of learning", namely an analysis of how instructional phenomena are socially and psychologically constituted. Photo-interviewing was selected as a strategy because it offers much promise in bridging two realities: the physical and the psychological.

THE SETTING

Recently, our College of Education began to operate a three year grant from Apple Computers Inc. A software tool, HyperCard, was selected to integrate many of the college's short and long-term technology goals. Hypercard was chosen as a method of integration based on two assumptions. First, supplying faculty with computers would not assure that they would become part of the educational and instructional program. For a variety of reasons, including a limited availability of computers, it was assumed faculty often would be reluctant to alter their teaching approaches. Second, HyperCard would provide a unique opportunity to involve faculty and

students in the use of computers because of its relative ease of learning, reasonable cost, and potential for almost immediate benefits. To encourage the use of HyperCard, ongoing intensive training classes were made available (and continue to be available) to faculty and students.

Given the innovative and evolutionary nature of this project, standard objectives-based and management models of program evaluation were determined to be insufficient. A perception-based model of evaluation (Kunkel & Tucker, 1983) incorporating many of Stake's (1982) tenets was adopted. During April of 1989, major evaluation questions as well as standards of quality were negotiated between the internal evaluators, project staff, dean of the college of education, and the funding agency's project officer. Using the perception based model, six major questions were negotiated which would capture three phases of the program: contexts, processes and products.

MAJOR EVALUATION QUESTIONS

1. Who are the participants and what is the nature of their participation over time?
2. What training occurs and how effective is it?
3. What use of the Macintosh occurs in classrooms of participating faculty?
4. What other training is taken by faculty participants?
5. What is the resultant impact of the Macintosh's use on students?
6. What are outcomes, needed follow-ups, and replication strategies?

Diverse sources of data, both qualitative and quantitative, were used to describe each question. Data sources included:

- review of project proposals, project manager files as well as curricular and training materials;
- analysis of internal evaluation data such as benchmarks, context and summative questionnaires;
- visitation to field applications throughout the year;
- individual and group interviewing with representative samples of university staff, administrators, K-12 teachers, Apple program officers, and teacher education students.

ADDING AN INNOVATIVE DATA SOURCE

The Apple project was still evolving during its first year of operation. As a result, the evaluation took on a decided process-oriented cast and needed to be able to accommodate a certain amount of uncertainty. The authors felt photo-interviewing was a flexible approach which could collect unpredictable as well as scheduled behaviors in training. As Hall (1974) had advised, we approached the photographic content with an open strategy in order to respond to holistic content.

THE EPISODE

This paper presents one application or "episode" of photo-interviewing. The episode involved an intensive workshop entitled "Introduction to HyperCard". The workshop was conducted in a university computer lab with 27 Apple Macintoshes. There was one instructor, one graduate assistant, and 27 students. One data collector was a very experienced evaluator, but was less experienced with the technical aspects of photography. For the second data collector, the reverse was true.

The workshop took place on two separate weekends. Each weekend began with a four hour session and continued with day-long sessions on Saturday and Sunday. On the first weekend of the workshop, two photographs (with different lenses) were taken at approximately twenty minute intervals by the two data collectors. After a review of the products of the first weekend's efforts and subsequent discussion between the evaluators, this collection strategy was adjusted. There were two reasons for this deliberate decision. First, artificially imposing an exact twenty minute interval between the photographs seemed contrived and inefficient. Events, judged by the evaluators to be salient parts of the episode, were being missed. A second reason was that the evaluators, hesitantly at first, changed roles from "disciplined" observers to observer-participants. Consequently, on the second weekend, photographs were taken which, from the perspective of the photographer/data collectors, functioned as a journal of the occurrences of the workshop.

The photo-interviewing application occurred one month after the workshop. Attempts were made to schedule all trainees into small groups for the interviews. Interviews with four groups of workshop participants (N=19) occurred. The evaluators used the following five phase process to select photographs and clarify or extend data derived from the oral interview.

1. Photographs of training environments were screened individually and then collectively by the two internal project data collectors.
2. Next, the two data collectors interviewed each other about perceptions invoked by the photographs of training.
3. Photographs were assembled in preliminary structured units which documented a visual narrative. First , the photographic images were arranged by chronological experiences and as spatial maps of the training environment.
4. Still photographs can be overwhelming in their volume of detail. To control for this, patterns were prioritized and judged to be pertinent in some way to the key informants who would be interviewed. In addition, training observations scales, benchmark data, and summative questionnaire data were used to identify patterns. Capitalizing on associations among these data sources, a resultant inventory was undertaken to select the most appropriate photographs to serve as interview stimuli.

5. The final phase involved abstracting and validating insights from photographs through detailed interviews with key informants. These oral interview questions, as well conversationally-related follow-up questions, reflected the evaluation paradigm's six major questions.

MAJOR LEARNINGS AND EMERGING POLEMICS

An evaluation is only as good as the shared Umwelt or reality which the evaluators are able to coalesce and make overt among all significant players. Certainly, recording and interpreting patterns should be within the scope of a good evaluation. Approaching this "willed" reality or new Umwelt can be facilitated by identifying polemics as signposts. By presenting the following five polemics, we hope to stimulate discussion of how evaluating the impact of dynamic technology training projects can be approached and program improvement addressed.

POLEMIC 1: INTERNAL VERSUS EXTERNAL ORIENTATION

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high indwelling **low indwelling**

The relationship among students, trainers, and photographers emerged with time. At first, we accepted the advice of Templine (1979) who emphasized the importance of shooting photographs based on elapsed time-intervals in order to improve representativeness. Later, the nature of the photographic sampling changed over time due, at least in part, to the changing role of the photographers. As stated earlier, our role began as "clean" data collectors who regularly photographed every 20 minutes with two different lenses (a very wide angle lens to establish context and a normal or short telephoto lens to detail an aspect of the environment). There were 19 or 20 minutes between shots in an intensive training environment. Our impression was that much was being lost. We discovered that the event sampling by time resulted in "sterile" photos. When we *added* spontaneous incident photos to our event sampling strategy, we "crossed over" from the observer side of the continuum and became active participants, even to the point of serving as ancillary HyperCard tutors!

In essence, we were directly experiencing what Michael Polanyi (1975) calls "indwelling" and the phenomenon of our tacit perceptions being made more overt and contextually sensitive as a result of extended personal dwelling in a situation. As stated by Collier and Collier (1986), "the production of photographs for purposes of research requires ... an overview of the culture or setting which allows all details to be seen within a context." This holistic view of a context can be achieved in a variety of ways, including following a participant as he or she passes through the program over a period of time fulfilling the material and social needs of that program. Thus the

photographer evaluator will observe the culture of that program in functional association, meaningfully "ordered like the beads of a necklace" (Redfield, 1960). Accordingly, the changes we experienced as we grew to be part of the class culture resulted in more photographs which were able to better capture more critical events representative of the conditions of the training environment.

POLEMIC 2: HOLISM VERSUS DISRUPTION

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holism **disruption**

It was our premise that many photographs were better than too few when striving for a comprehensive picture of a program that captures multiple perceptions. Likewise, we felt diverse data collection methodologies were essential. For example, we kept narrative logs (e.g., noting slide frames, date, time, topic and action) as well as collected context inventories, daily benchmarks, and summative questionnaires for later analysis of the photos.

The intrusive nature of photography demands that the "photographer evaluators" must struggle not to be distracting in order to reduce the commotion generated by their role. As things evolved naturally in this particular episode, we were persuaded to take a more participant approach to data collection. To do otherwise would have been would have been unnatural and awkward. This decision required "replotting the course" as a result of environmental variables. This was uncomfortable, particularly for the less experienced evaluator.

Similarly, subjects must, as naturally as possible, make overt their successes and foibles. The length of the coverage has much to do with the success of this occurring. The photographic literature is jammed with reports of master photographers who insist that time and a photographer's success in "capturing" subjects are correlated. The aggression and theft implied in the metaphor of "capturing" is not far from the truth. Intuitively, everyone seems to agree with Susan Sontag's idea that the most inclusive form of photographic acquisition is information.

> The photographic exploration and duplication of the world fragments continuities and feeds the pieces into an interminable dossier, thereby providing possibilities of control that could not even be dreamed of under the earlier system of recording information: writing. (1977, p. 156).

As evaluators, we approached our task aware of the potential for the subject to perceive the camera as an instrument which would single-out and expose their natural weakness in the learning environment. Given the number of pictures taken, many respondents reported that they did not feel like they were "singled" out and after the first night of shots, did not even notice the photographers presence for hours at a time. An interesting strategy for future photo-interviewing sessions would

be to include photographs taken by project participants themselves as Brown et.al. (1982) suggested in order to gather multiple perspectives of an event.

POLEMIC 3: VERBAL REALITY VERSUS VISUAL REALITY

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highly visual **highly verbal**

Photos appeared to act as both stimuli and verifiers of perception. Most interviewees indicated that the photographs helped "trigger" their memories and expand their perceptions of the training event. The interviewers began with verbal question and verbal answer exchanges and discovered that the addition of photographs greatly added to the depth of the feedback. Whereas the verbal interview tended to elicit general perceptions, the photographs shared in small group settings elicited more specific perceptions, enabled detailed probing and clarification of interviewee responses, and resulted in more viable suggestions for project/training improvement. This was especially true of subjects from visual arts disciplines who indicated they were more comfortable responding to visual stimuli.

POLEMIC 4: PROVE VERSUS IMPROVE

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highly proof-oriented **highly improvement-oriented**

To us, it appears photo-interviews can generate data particularly helpful for pilot-stage projects where innovation and development rather than status quo and maintenance are organizational priorities. Moreover, we posit that photo-interviewing can serve as an instructional as well as an evaluative strategy given the projective nature of visual images. Photographs prompt reflection upon the program being evaluated or researched which goes beyond an interviewing situation lacking visual cues. Photographs seem to have a life of their own beyond the evaluation or the project. For example, those photographs which generated negative perceptions (e.g., viewed as inaccurate, disturbing or infuriating by informants) were often indicative of rejection of overt data at odds with their own internal data or belief structures. Repeated exposure to diverse pictures enabled perceivers (both the evaluated and the evaluators) to develop a more accurate description of critical project contexts, processes and products. Armed with these holistic perceptions, it was possible to generated much more viable and negotiable suggestions for program improvement rather than being captured in a proof paradigm.

SUMMARY

Overall, it appears that multi-modality interviewing facilitated the accuracy and quality of response. As a result of our investigation, we believe that photo-interviewing also yielded "richer data" than that usually obtained from verbal interviewing procedures alone. Informants tended to examine images and react to cues present in those images more carefully than would have been expected using written or spoken cues alone. Photographs triggered recall and focused the interviewing process. Photographic images solicited both differences and similarities in individual perception which can be analyzed across groups of perceivers. Photo-interviewing provided a means of "getting inside" the program and its context to describe and explain the program and its consequences in terms of participants' realities and meaning systems that oral interviewing did not permit.

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